



Southern New Hampshire PFOA Investigation:
Public Meeting
in
Merrimack, NH

June 29, 2016

Agenda

- **Introduction**
 - Clark Freise, Assistant Commissioner DES
- **Status of Investigations**
 - John Regan, Administrator, Hazardous Waste Remediation
- **Water Quality Testing Results**
 - Brandon Kernen, Manager, Hydrology/Conservation
- **Merrimack Village District Water System Update**
 - MVD
- **Perfluorochemical (PFC) Blood Testing**
 - Marilee Nihan, Deputy Commissioner DHHS
 - Dr. Benjamin Chan, State Epidemiologist
- **Questions and Answers (written)**

Hand to Brian McCarthy or DES staff during presentation please!

 - Brian McCarthy, Assistant Town Moderator
- **Informal Q&A (verbal – 1 minute limit)**
 - Brian McCarthy, Assistant Town Moderator



Introduction

Clark Freise
Assistant Commissioner, DES



Why are We Investigating PFC Contamination in Southern NH?

- ▶ On 26 Feb., Saint-Gobain Performance Plastics reported to DES results of water tests at its Merrimack facility
- ▶ PFOA was detected at 30 parts per trillion (ppt) in water supplied by Merrimack Village District Water System (MVD)
- ▶ NHDES and MVD took immediate steps to sample drinking water in the area, which will be described in detail later

PFCs as an Emerging Contaminant and EPA's Provisional Health Advisory

- ▶ PFOA/PFOS are not currently regulated under the Safe Drinking Water Act
- ▶ 2009 - EPA established a Provisional Health Advisory (PHA):
 - 400 ppt PFOA
 - 200 ppt PFOS
- ▶ The PHA was a health-based concentration, above which action should be taken to reduce exposure through drinking water
- ▶ The PHA was based upon short-term exposure



New Lifetime Health Advisories for PFOA and PFOS

- ▶ May 19, 2016 EPA issued lifetime health advisories for PFOA and PFOS
- ▶ PFOA: 70 ppt
- ▶ PFOS: 70 ppt
- ▶ Combined PFOA and PFOS: 70 ppt
- ▶ Advisories set by EPA based upon most sensitive human receptors
- ▶ NHDES reviewed and concluded to be appropriate and protective of public health

Establishment of Ambient Groundwater Quality Standards for PFOA and PFOS

- ▶ May 31, 2016 NHDES filed an emergency rule to adopt ambient groundwater quality standards (AGQS) for PFOA and PFOS
- ▶ PFOA: 0.07 µg/l or 70 ppt
- ▶ PFOS: 0.07 µg/l or 70 ppt
- ▶ Combined PFOA and PFOS: 0.07 µg/l or 70 ppt
- ▶ AGQS is enforceable for purposes of site remediation requirements, provision of alternate drinking water, and for public water systems
- ▶ Emergency rules last 180 days

The Road through Formal Rulemaking

- ▶ DES has initiated formal rulemaking (RSA 541-A)
- ▶ The Office of Legislative Budget Assistant (LBA) has created a Financial Impact Statement (FIS)
- ▶ DES will publish our Rulemaking Notice which will open the Public Comment period.
- ▶ Two Public Comment meetings:
 - Aug. 3rd 6:00pm: Campbell High School in Litchfield
 - Aug. 10th 6:00pm: NHDES Office at the Pease Tradeport
- ▶ Public Comment should close on Friday August 19th
- ▶ JLCAR hearing on/about September 15th

Agenda for remainder of the meeting

- ▶ We have results from these sites:
 - Merrimack/Litchfield/Bedford/Manchester
 - Amherst
 - Merrimack Landfill
 - LL&S Landfill – Salem

- ▶ Where would you like us to spend your time?



Status of Investigations

John Regan

Administrator, Hazardous Waste Remediation

SITES



1.0 Mile Radius

PFOA + PFOS (PPT)

● ≥400

● 70 - <400

● 10 - <70

● < 10

○ Result Pending

Public Water Supplies

■ Water Distribution

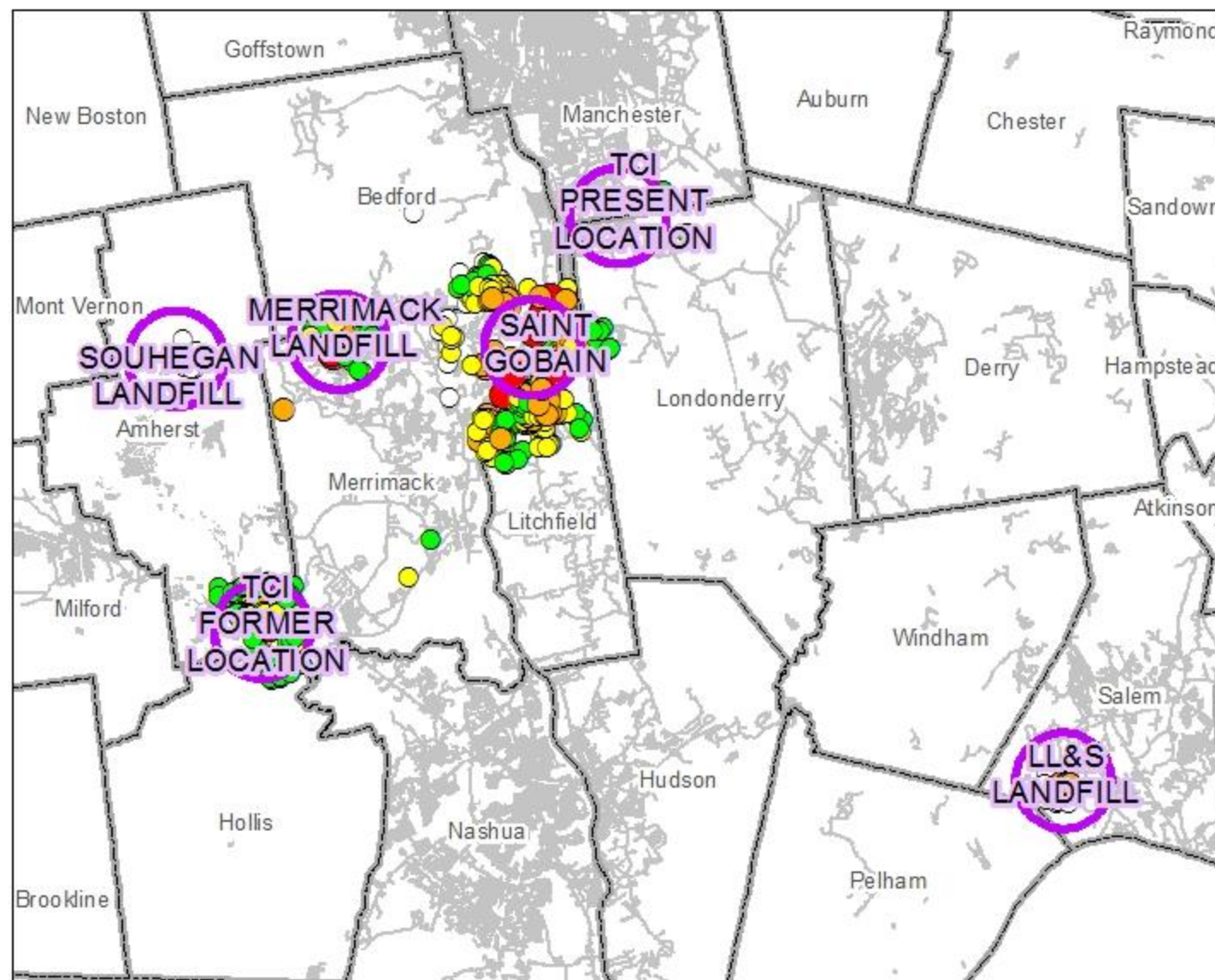
□ Political Boundary

1 in = 18,000 feet

1:216,000



NEW HAMPSHIRE
DEPARTMENT OF
**Environmental
Services**



WELLS SAMPLED	RESULTS RECEIVED	PFOA & PFOS ≥70 PPT	APPOINTMENTS SCHEDULED	REMAINING WELLS
868	758	177	26	131

SAINT-GOBAIN



PFOA + PFOS (PPT)

● ≥ 400

● 70 - <400

● 10 - <70

● < 10

○ Result Pending

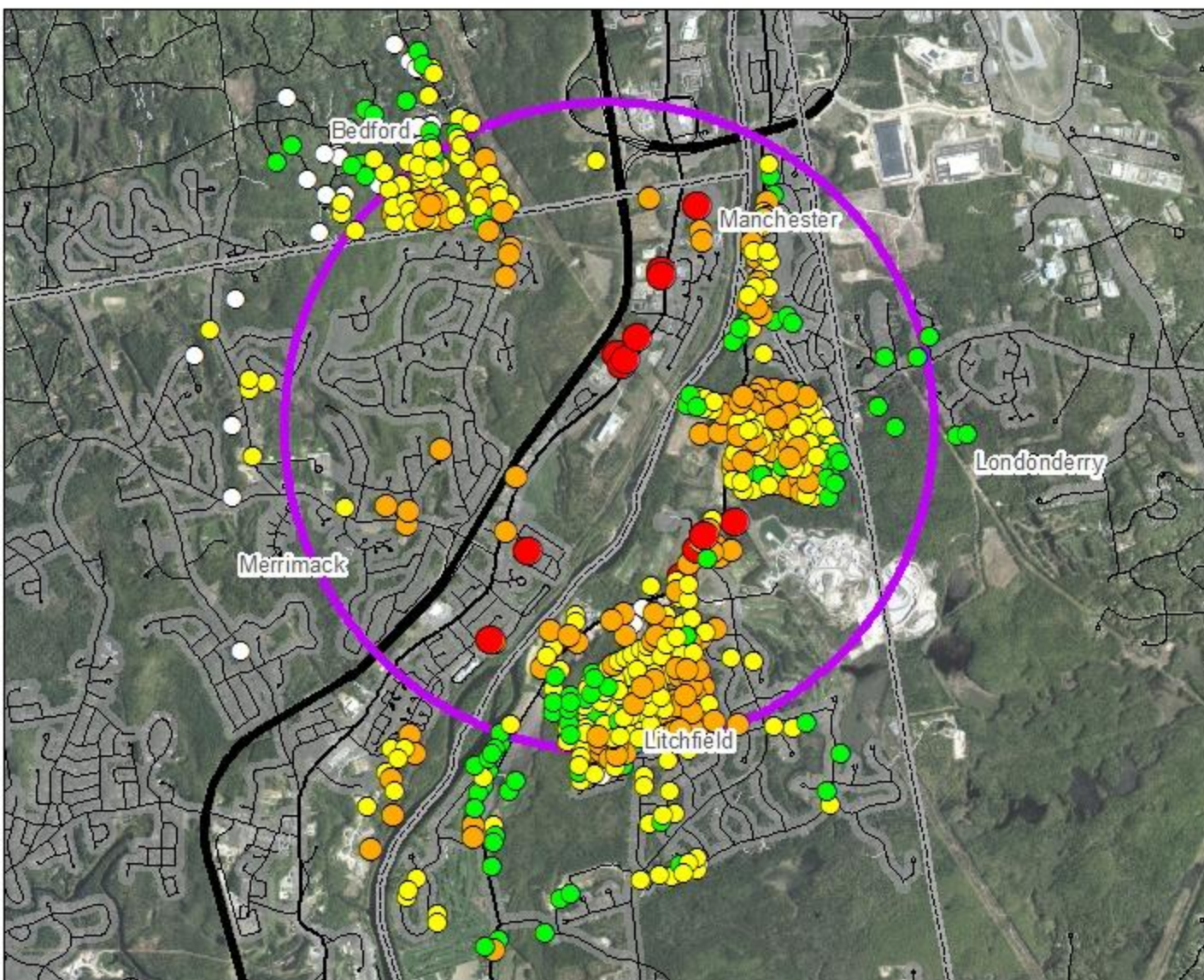
Public Water Supplies

■ Water Distribution

□ Political Boundary

1 in = 4,000 feet

1:48,000



WELLS SAMPLED	RESULTS RECEIVED	PFOA & PFOS ≥ 70 PPT	APPOINTMENTS SCHEDULED	REMAINING WELLS
579	527	166	5	11

Initial Response/Next Steps (M/L/B/M)

- Bottled water provided to +/- 600 people
 - 3 satellite stations for pick up
- Merrimack connections - 14 properties
- Evaluation of treatment options for MVD-4/5
- Engineering design/specifications for Litchfield waterline extensions
- Engineering design/specifications for Manchester waterline extensions
- Evaluating water supply alternatives for impacted areas of Bedford
- Detailed site investigation and remedial action plan

TCI AMHERST



PFOA + PFOS (PPT)

● ≥ 400

● 70 - <400

● 10 - <70

● < 10

○ Result Pending

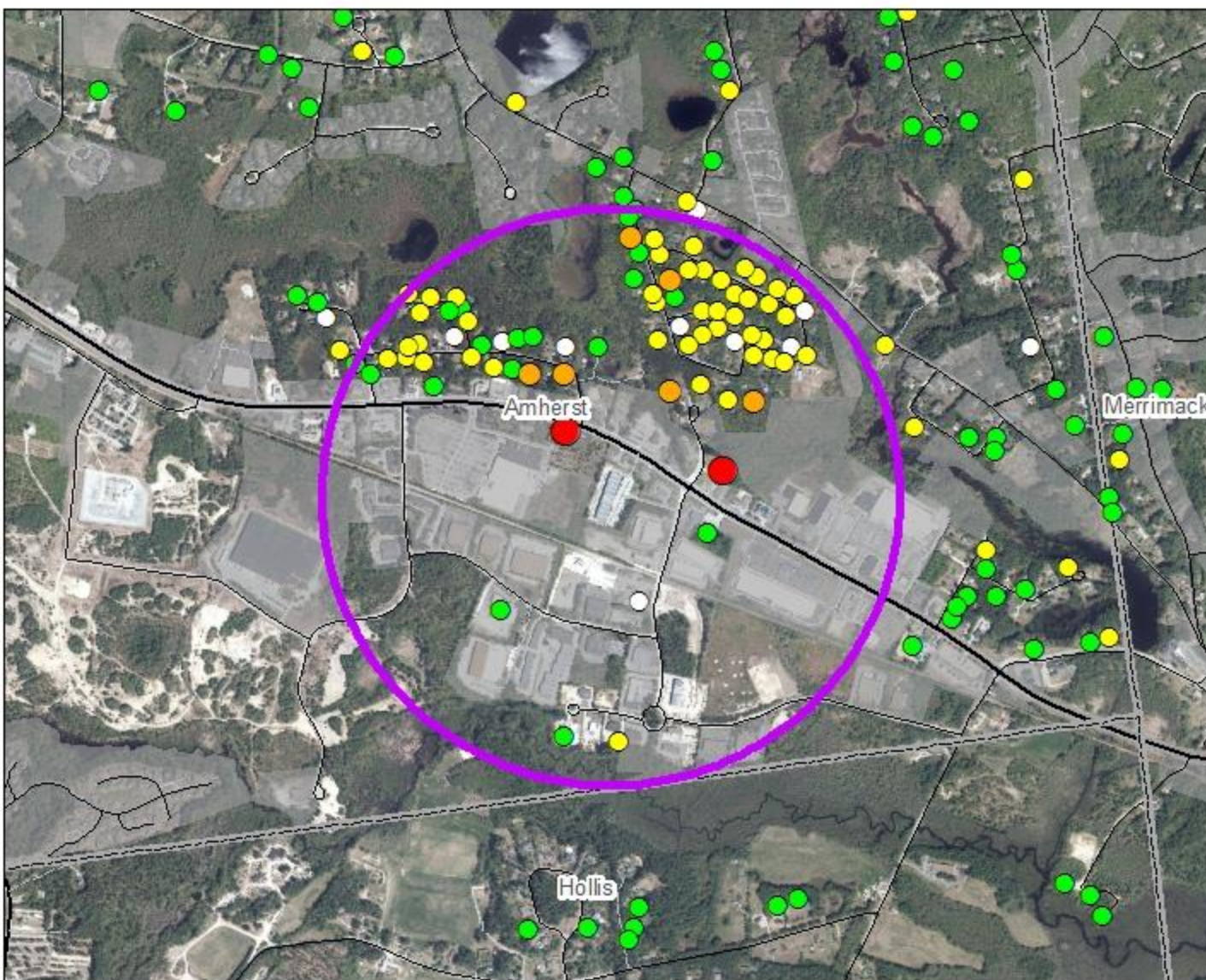
Public Water Supplies

■ Water Distribution

□ Political Boundary

1 in = 1,500 feet

1:18,000



WELLS SAMPLED	RESULTS RECEIVED	PFOA & PFOS ≥ 70 PPT	APPOINTMENTS SCHEDULED	REMAINING WELLS
180	166	9	2	25

Initial Response/Next Steps (Amherst)

- Temporary bottled water provided to +/- 88 people
 - Satellite station for pick up
- Continued sampling of wells and evaluation of interim and permanent water supply options
 - Resampling with split samples
- Soil sampling at sensitive receptors and agricultural sites
- Detailed site investigation
- Remedial action plan

MERRIMACK LANDFILL



PFOA + PFOS (PPT)

● ≥ 400

● 70 - <400

● 10 - <70

● < 10

○ Result Pending

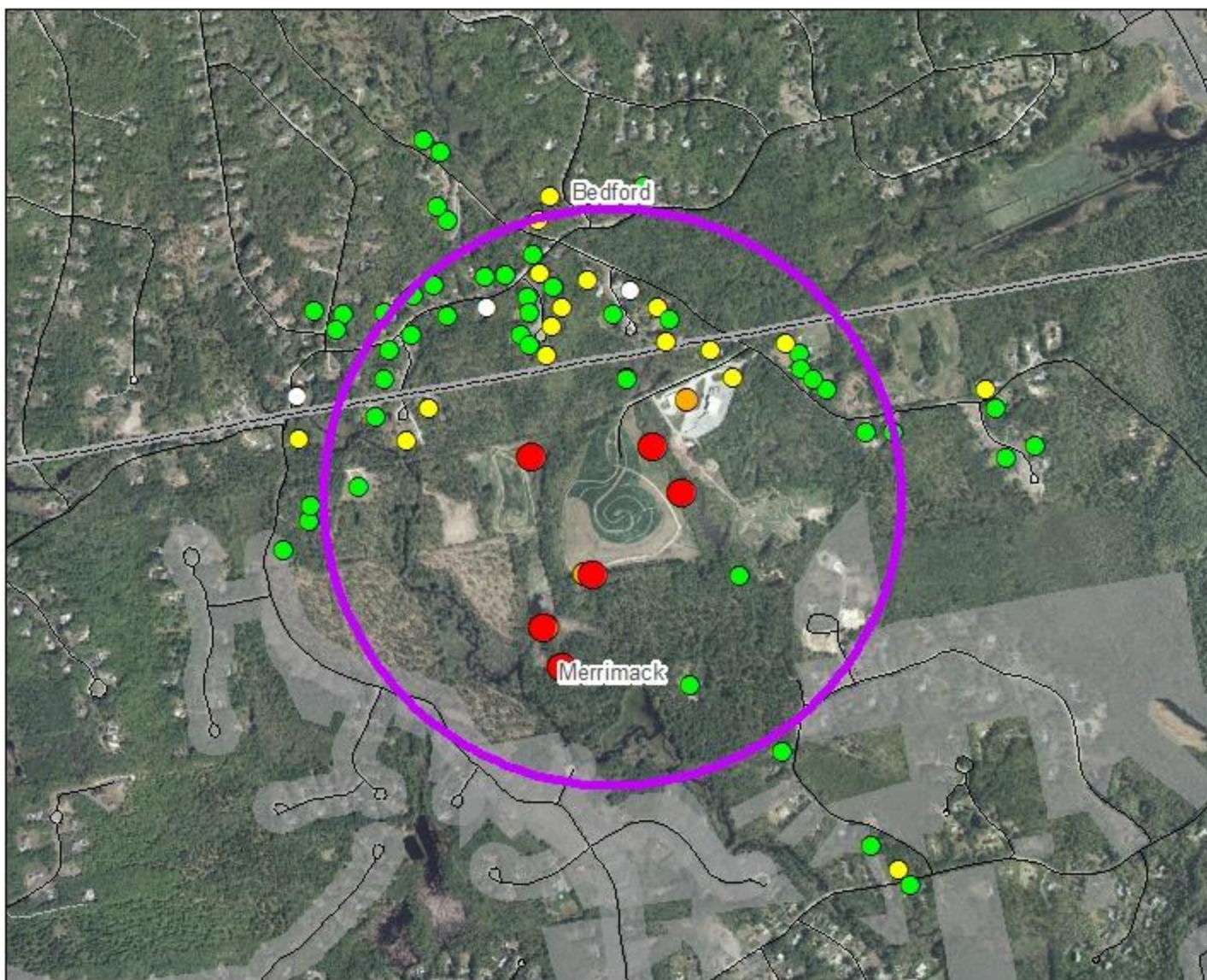
Public Water Supplies

■ Water Distribution

□ Political Boundary

1 in = 1,500 feet

1:18,000



WELLS SAMPLED	RESULTS RECEIVED	PFOA & PFOS ≥ 70 PPT	APPOINTMENTS SCHEDULED	REMAINING WELLS
67	62	1	2	6

TCI MANCHESTER



PFOA + PFOS (PPT)

● ≥400

● 70 - <400

● 10 - <70

● < 10

○ Result Pending

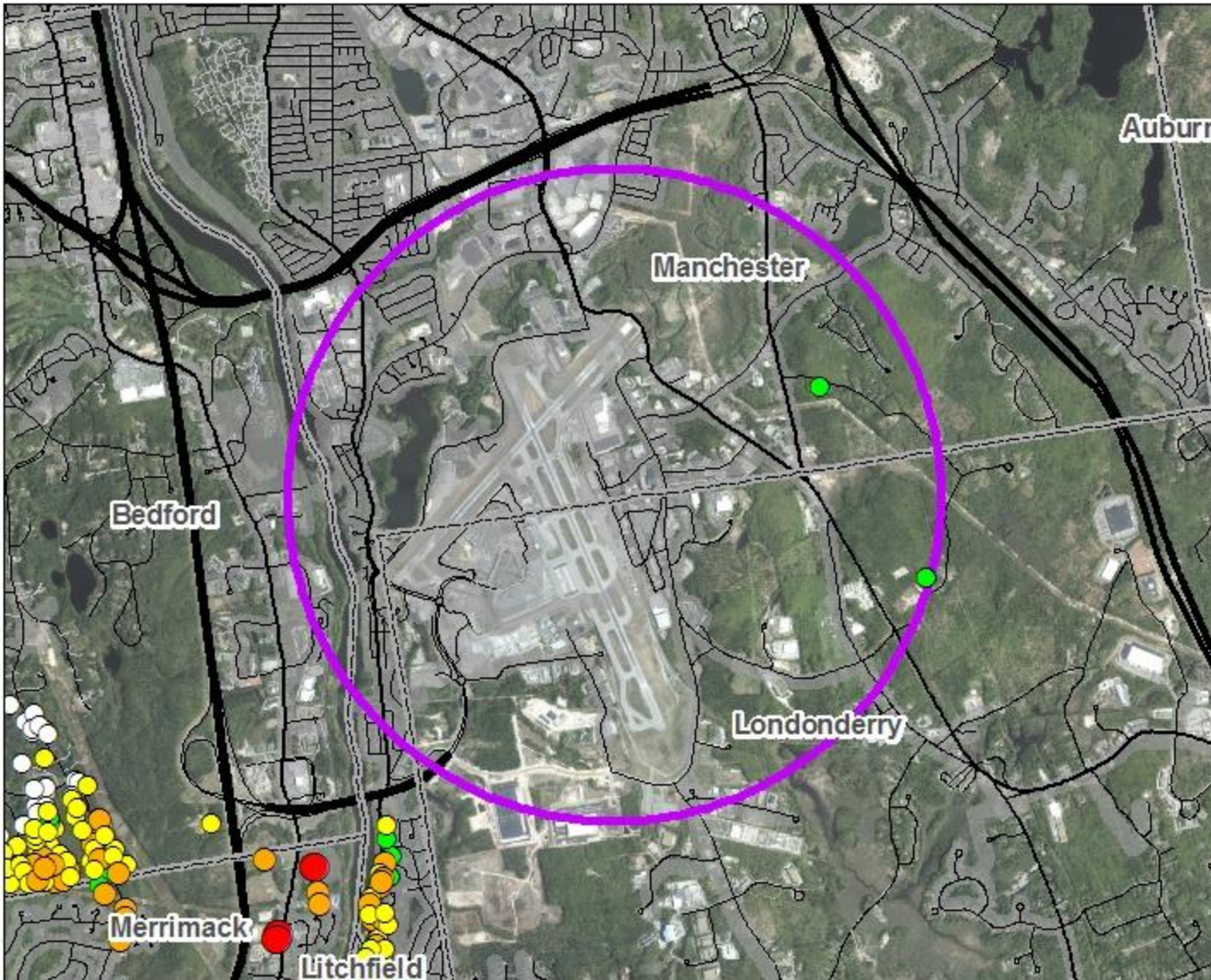
Public Water Supplies

■ Water Distribution

□ Political Boundary

1 in = 4,000 feet

1:48,000



WELLS SAMPLED	RESULTS RECEIVED	PFOA & PFOS ≥70 PPT	APPOINTMENTS SCHEDULED	REMAINING WELLS
2	2	0	0	3

SOUHEGAN LANDFILL



PFOA + PFOS (PPT)

● ≥400

● 70 - <400

● 10 - <70

● < 10

○ Result Pending

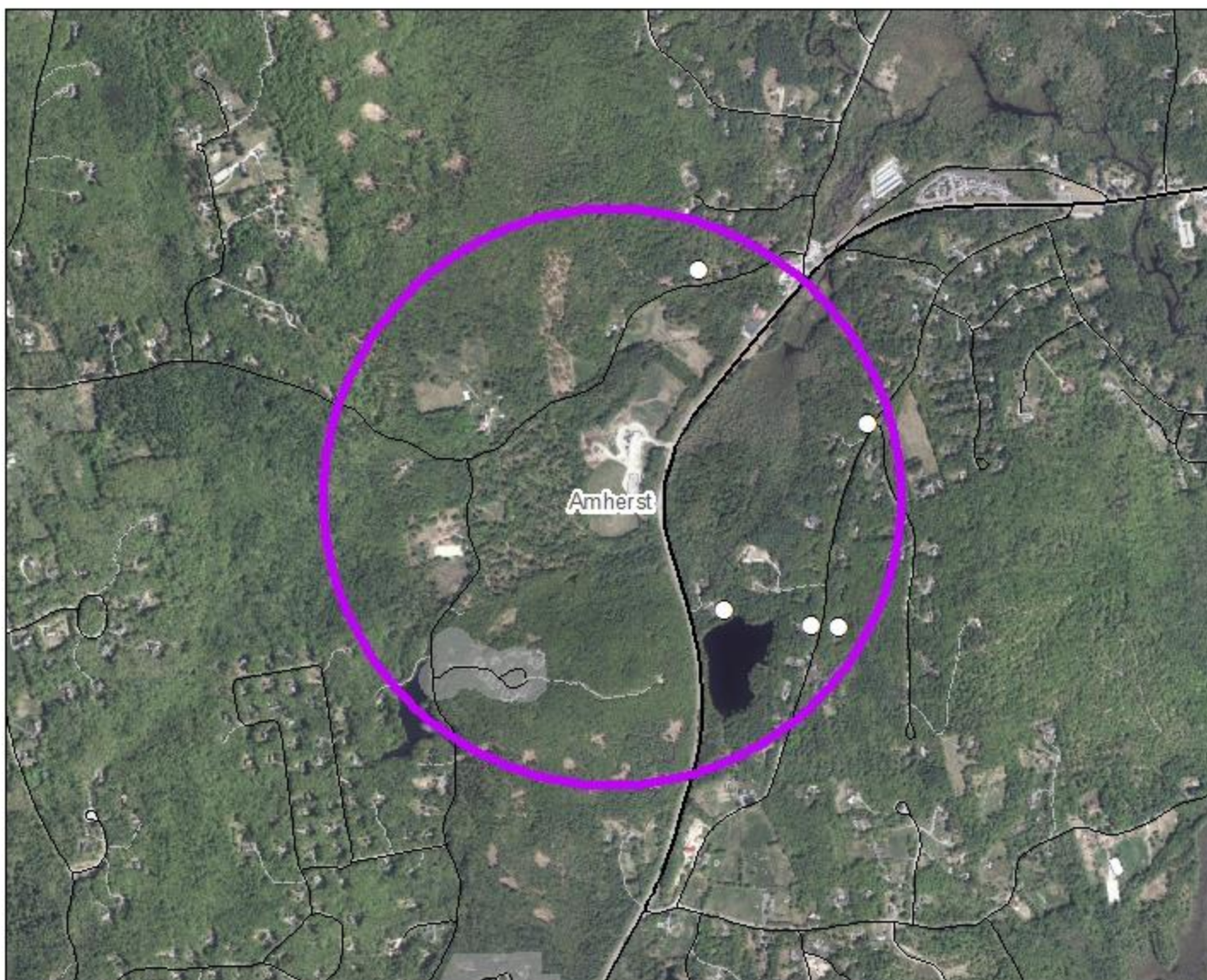
Public Water Supplies

■ Water Distribution

□ Political Boundary

1 in = 1,500 feet

1:18,000



WELLS SAMPLED	RESULTS RECEIVED	PFOA & PFOS ≥70 PPT	APPOINTMENTS SCHEDULED	REMAINING WELLS
18	0	0	4	32

LL&S LANDFILL



PFOA + PFOS (PPT)

● ≥ 400

● 70 - <400

● 10 - <70

● < 10

○ Result Pending

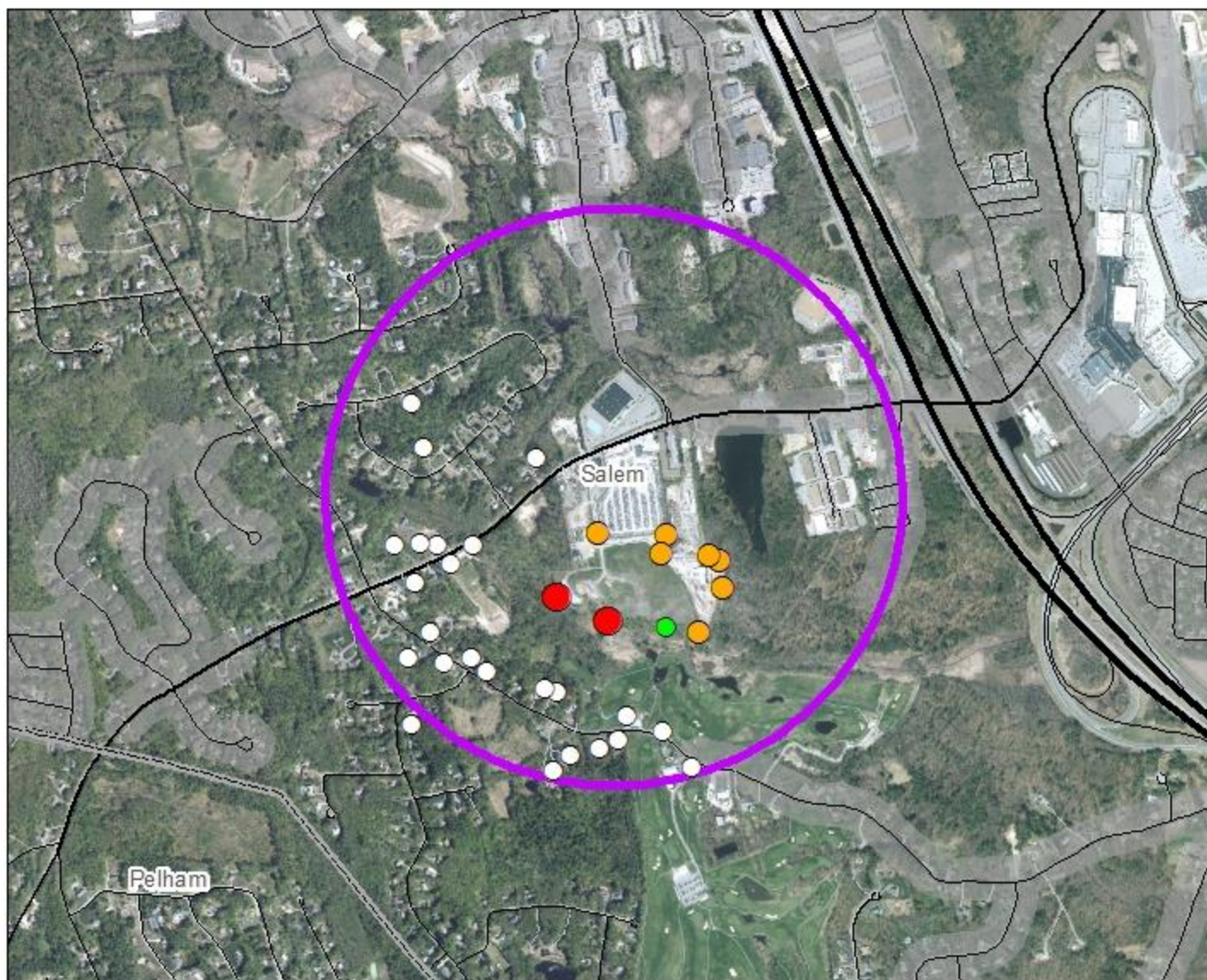
Public Water Supplies

■ Water Distribution

□ Political Boundary

1 in = 1,500 feet

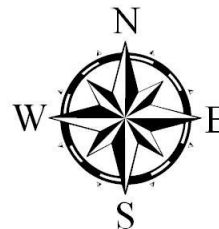
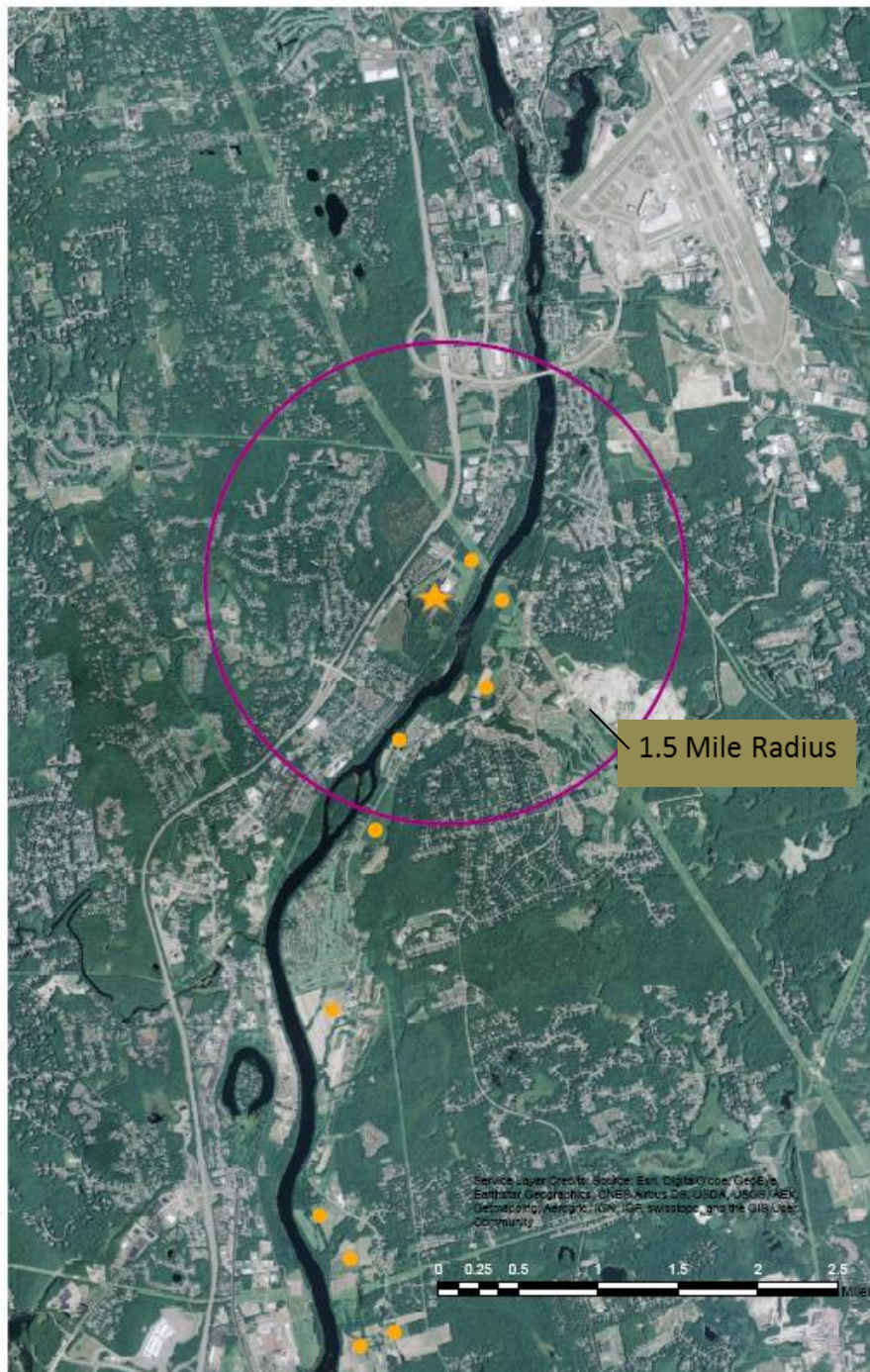
1:18,000



WELLS SAMPLED	RESULTS RECEIVED	PFOA & PFOS ≥ 70 PPT	APPOINTMENTS SCHEDULED	REMAINING WELLS
21	0	0	11	28

Soil Testing at Agricultural Properties

- ▶ 10 properties sampled
- ▶ ~160 samples collected
- ▶ Results from one field
 - PFOA – 0.84 ppb
 - PFOS – Not detected
 - No measureable PFOA expected in crops





Water Quality Testing Results

Variation in lab results

MVD sampling results

Regional and state-wide sampling results

Brandon Kernen

**Manager of Hydrology and Conservation, Drinking Water
and Groundwater Bureau**

Laboratory Differences Investigation

- There is an apparent consistent discrepancy in analytical results from two different labs (0-60%) based on a limited number of samples
- NHDES detected the potential for this a few weeks ago and began assessing. Actual split sample results were received last week.
- The lab result differences are being incorporated into management decisions and public health is being protected based on the most conservative results at this time
- Due to spatial variation and lab variability, bottled water is being provided to private wells in Litchfield, Bedford, Merrimack, and Manchester; and on a temporary basis Amherst.
- MVD has shut down the two wells that produced water near or over the 70 ppt standard based on either lab method

Important Points About Lab Differences

- Does not impact the interpretation of samples with a low concentration detection
- Does not change the significance of samples with detection of high concentrations
- No false positives or false negatives appear to be occurring
- Variation of results of $\pm 30\%$ is consistent with industry standard and approved analytical methods
 - Some variation is expected (we are measuring in the ppt)
 - Consistent bias not expected
 - Cause of high range of bias needs to be explained

Differences in Labs

	Lab 1	Lab 2
Third Party Accreditation	Department of Defense, Multiple States, Third-Party National Accreditation	USEPA Method 537
Consistent Method from lab to lab	No – National labs have similar but different protocols	Yes
Number of Analytes	23-24	6
Reporting Limits	Similar	
Result Correction	Tracers added to every sample to assess testing inefficiencies. Results are compensated based on tracer performance	Tracers not added to each sample. Standards are utilized.
PFOA Result Trends	Lab 1 is consistently higher than Lab 2	
Sample Type	Environmental Samples	Drinking Water


Laboratory Differences Investigation

- ▶ Determine amount of variation caused by:
 - Expected analytical variability
 - Laboratory standard operating procedures
 - Analytical methodology
- ▶ Issue of potential differences in lab method results (state-of-the-art quantitation methods versus traditional)
 - Not well defined nationally
 - Fortunate NH used multiple labs and methods to address this now
 - We can make well informed decisions understanding this issue
 - Important policy and public health responsibility that NHDES has integrated into its management of the sites

Laboratory Differences – Path Forward

- ▶ NHDES' lead chemists are analyzing analytical standard operating procedures
- ▶ Additional split samples are being collected
- ▶ Use of an additional (third) lab
- ▶ Incorporating lab variability into public health decisions as appropriate
- ▶ Collaborating with experts in other states, federal government, industry and academia
- ▶ Possibly develop state-wide accreditation requirements for one or multiple lab methods

PFOA INVESTIGATION

 Political Boundary


Public Water Supplies


 MVD

 Litchfield System

 Nashua

 Cabot / Greenfield

 Souhegan Woods

 Water Distribution

 Water Sources



MVD7 MVD8

MVD4 MVD5

MVD2

MVD3

MVD Sampling Results

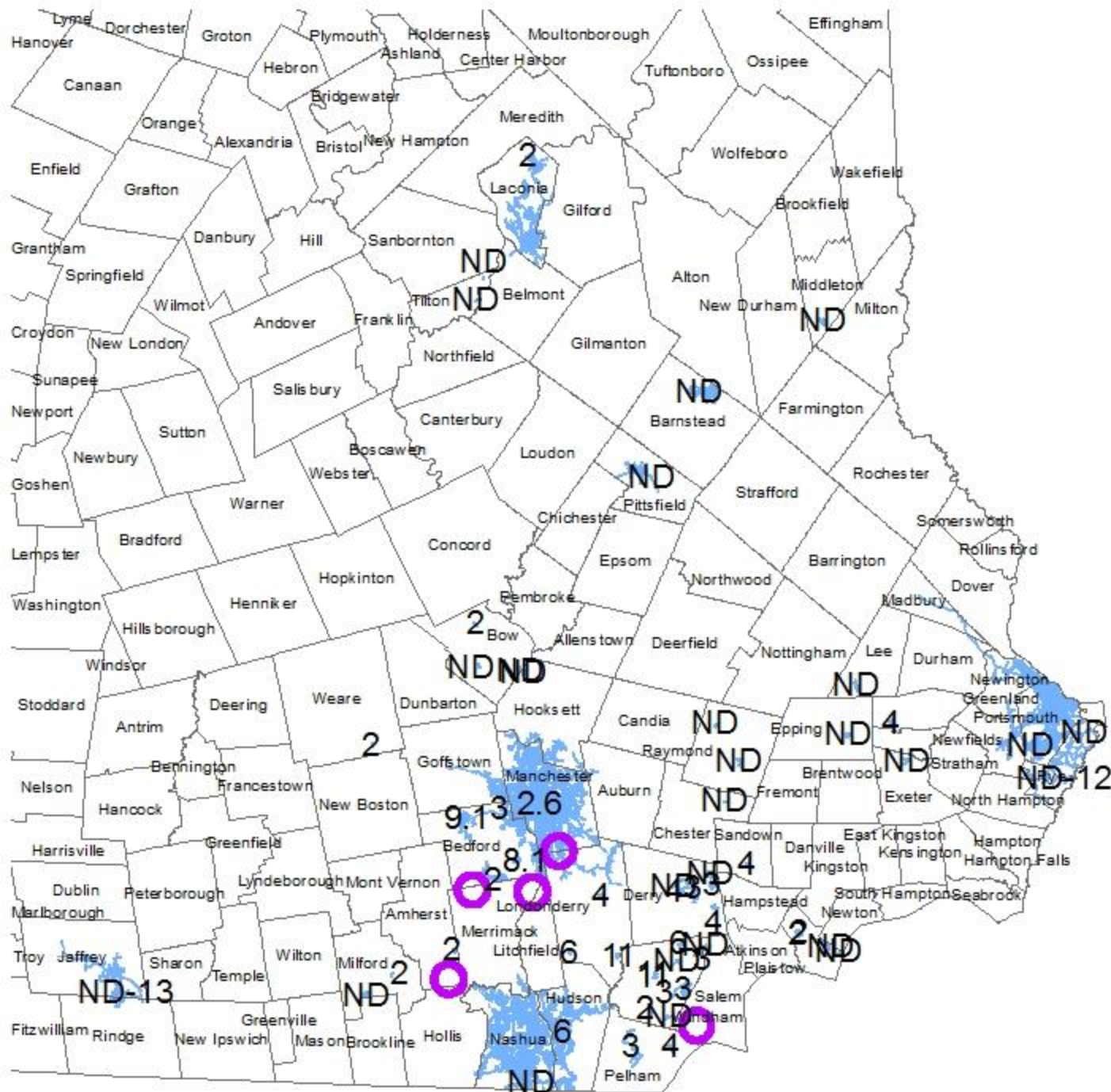
Well Name:	MVD-2	MVD-3	MVD-4 (offline)	MVD-5 (offline)	MVD-7	MVD-8	MVD- 7&8 TP*
6/2/16	6/ND	14/ND	25/ND	21/ND	8/ND	5/ND	7/ND
5/26/16	12/ND	13/ND	34/ND	35/ND	13/ND	8/ND	10/ND
5/12/16	18/4.4	29/4.5	75/5.5	79/4.8	25/4.6	13/4.5	17/4.4
5/5/16	33/4.9	45/16.7	130/11	66/4.7	27/4.7	9.6/ND	16/ND
4/28/16	24/ND	25/ND	85/5.9	57/ND	21/ND	9.2/ND	14/ND
4/21/16	26/5.5	26/ND	93/7.0	56/5.4	25/5.4	9.9/9.1	16/ND
4/14/16	31/15	32/6.1	94/8.8	67/5.5	30/7.0	10/ND	18/4.9
4/7/16	28/ND	Not Available - Scheduled Maintenance	94/6.8	52/ND	28/5.5	8.6/ND	Not Sampled
3/31/16	27/ND	Not Available - Scheduled Maintenance	90/5.6	56/ND	26/ND	8.5 & 9.7/ ND & ND	Not Sampled
3/9/16	17/ND	Not Available - Scheduled Maintenance	90/6	54 & 52/ND &ND	Not Available - Scheduled Maintenance	Not Available - Scheduled Maintenance	Not Sampled

Change
in Lab



PFOA/PFOS Sampling Results for Pennichuck Water Works Water Systems – Samples Collected by Pennichuck Water Works

	Cabot Preserve	Souhegan Woods	Pennichuck Litchfield Water System	Pennichuck Water Treatment Plant
Town:	Bedford	Amherst	Litchfield	Nashua
Source Water Desc.:	Water from MVD	Wells	Wells	Surface Water
Pop. Served:	940	290	3600	87500
6/15/16	9/ND	2/ND	4 & 6/ND & ND	2/ND
6/2/16	12/ND	2/ND	Not Sampled	4/ND
5/16/16	11/ND	2/ND	8 & 8/ ND & ND	Not Sampled
5/11/16	11/ND	2/ND	Not Sampled	Not Sampled
5/3/16	14/ND	2/ND	Not Sampled	Not Sampled
4/26/16	38/ND	2/ND	Not Sampled	Not Sampled
4/20/16	52/6.2	4.8/ND	Not Sampled	Not Sampled
4/13/16	52/8.1	5.7/5.9	12/ND	5.8/8.4
4/6/16	52/ND	4.9/ND	Not Sampled	Not Sampled
3/16/16	36/ND	3/ND	7 & 9/ND & ND	3/ND



Public Water Testing

Values = PFOA+PFOS

Public Water Supplies

Water Distribution

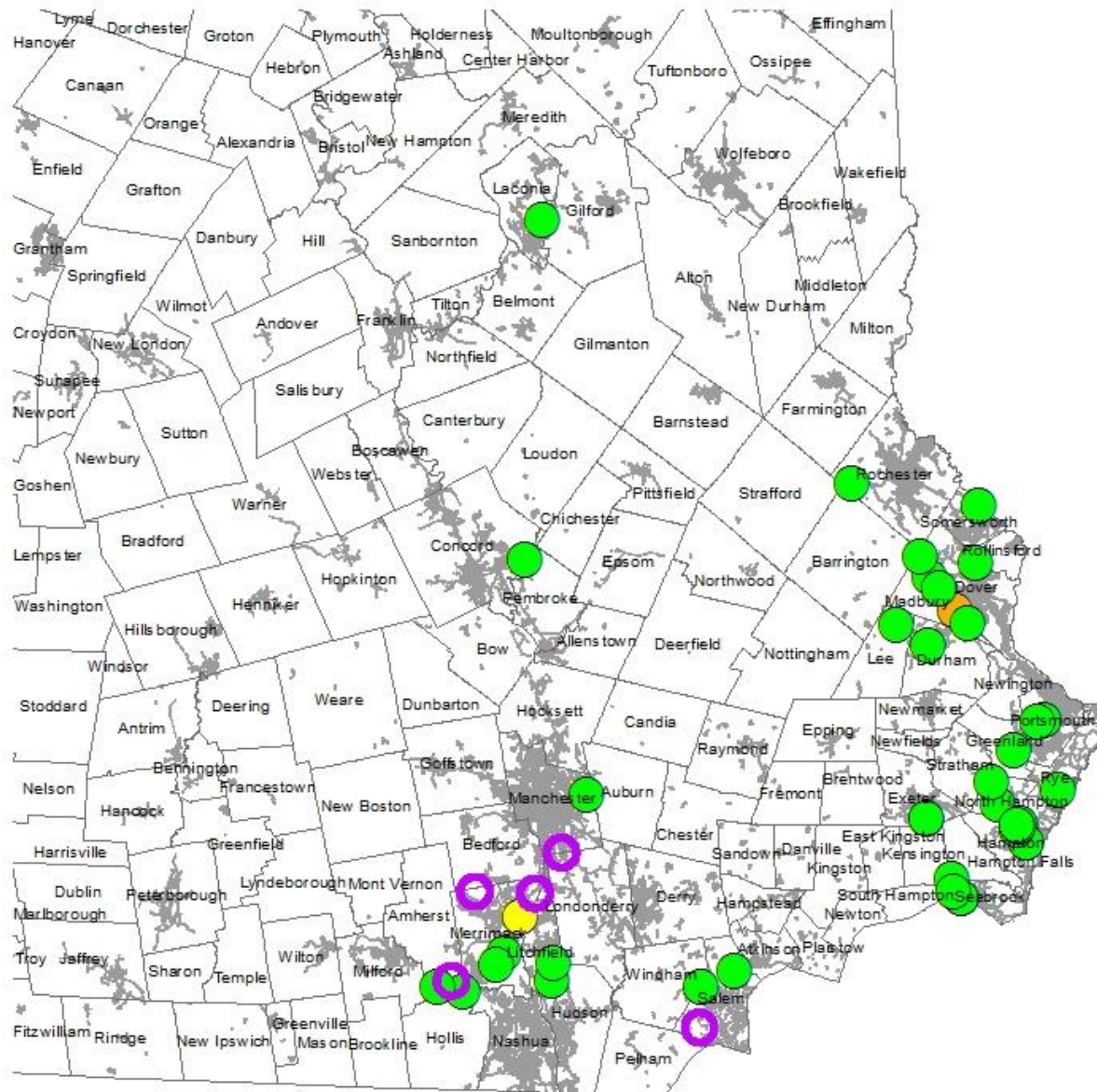
Sites
1.0 Mile Radius

Political Boundary

1 in = 54,000 feet

1:648,000





UCMR Testing

PFOA + PFOS (PPT)

● ≥400

● 70 - <400

● 10 - <70

● < 10

○ Result Pending

Public Water Supplies

■ Water Distribution



Sites

1.0 Mile Radius



Political Boundary

1 in = 54,000 feet

1:648,000



NEW HAMPSHIRE
DEPARTMENT OF
**Environmental
Services**

Request for Voluntary Sampling of Public Water Systems

- ▶ A letter to community and non-transient public water systems is going to be sent soon
 - Notifying them of EPA's new Public Health Advisory and NH's Ambient Groundwater Quality Standard for PFOA/PFOS
 - Request sampling and data reporting
- ▶ Coordination with labs complete
- ▶ Messaging on lab method variations being determined



Merrimack Village District Water System **Update**

MVD



Perfluorochemical (PFC) Blood Testing

Marilee Nyhan
Deputy Commissioner NH
Department of Health and
Human Services


Benjamin Chan, MD, MPH
State Epidemiologist
NH Department of Health and
Human Services

PFCs and Health


- ▶ For more detailed information about PFCs and studied health effects, please visit our website: <http://www.dhhs.nh.gov/dphs/pfcs/index.htm>
- ▶ Review our “Frequently Asked Questions” document

“How is NH DHHS facilitating PFC blood testing?”

Availability of PFC Blood Testing

- ▶ NH DHHS has decided to make PFC blood testing available for individuals concerned about their exposure
 - ▶ PFC blood testing is being offered for those who live on streets where bottled drinking water is being provided because of private drinking water wells that tested above 70 ppt PFOA, PFOS, or PFOA/PFOS combined
- 

Purpose of PFC Blood Testing

- ▶ To provide concerned individuals with their specific blood PFC levels
 - ▶ To better understand levels of PFC exposure in the community
- 

PFC Blood Testing:

Beginning mid-July

- ▶ **Step 1: Register for PFC blood testing**
 - Contact DHHS through our Public Inquiry Line
 - DHHS will send out information to individuals who qualify for PFC blood testing
- ▶ **Step 2: Complete consent form and exposure questionnaire**
- ▶ **Step 3: Blood draw (requires a requisition form)**
 - Southern NH Medical Center is assisting by performing blood draws and processing blood specimens

PFC Blood Testing:


Beginning mid-July

(continued)


- ▶ **Step 4: Serum testing for PFC levels**
 - Blood (serum) sample will be sent to NH DHHS Public Health Laboratories where it will be shipped to an out-of-state laboratory
- ▶ **Step 5: Results**
 - Reported from the testing laboratory to NH DHHS
 - NH DHHS will create result report forms that will be mailed to individual participants

Understanding PFC Blood Testing


For those who decide to get their blood tested for PFC levels, we want you to understand what a blood test can and cannot be used for...




A PFC Blood Test is an Exposure Test

- ▶ A PFC blood test is a test of exposure to PFCs
 - ▶ This test has been used to learn about levels of exposure to PFCs in the various communities
 - ▶ It will tell a person their level of exposure to specific PFCs at the time of the test
 - ▶ It will not tell a person where those PFCs came from
- 

A PFC Blood Test is Not a Medical Test


- ▶ A PFC blood test is not a medical or health-related test
 - ▶ It is not medically needed by your healthcare provider to monitor your health
 - ▶ Neither DHHS nor a healthcare provider will be able to tell a person whether they have had, or will have, health problems because of finding PFCs in your blood
 - ▶ An individual's future risk for developing health problems is also unknown
- 

A PFC Blood Test Can be Compared to Other Tested Populations

- ▶ Most people in the United States have various PFCs detectable in their blood
 - ▶ Your PFC blood level can be compared to levels in other populations tested
 - ▶ If you drank contaminated water, your blood PFC level likely will be higher than the general U.S. population
- 

Who is Responsible for Monitoring my Health?


Primary Healthcare Providers Should Monitor your Health

- ▶ Your primary healthcare providers are responsible for monitoring and addressing any health concerns you may have
 - ▶ They can best assess how to monitor your health based on a thorough history and physical exam
 - ▶ NH DHHS has provided resources and information to help clinicians make informed decisions
- 

ATSDR Assistance and Support

- ▶ PFCs are an emerging national Issue
- ▶ The CDC's Agency for Toxic Substances Disease Registry (ATSDR) is developing national healthcare provider recommendations for monitoring the health of exposed individuals
- ▶ NH DHHS has requested that ATSDR perform a "Health Consultation" to evaluate potential health concerns related to drinking water exposure around the Saint-Gobain plant

There is **No** Treatment for PFC Exposure

- ▶ There is no way to remove PFCs more quickly from your body
 - ▶ Blood PFC levels will go down slowly over time
 - ▶ There are no medical therapies for finding PFCs in your body
- 

Maintain a Healthy Lifestyle

- ▶ Individuals can proactively look out for their own health by seeking routine medical care
- ▶ Maintain healthy lifestyles and undergo routine medical screening as recommended by your healthcare provider
- ▶ Get your private drinking water tested for contaminants known to cause health problems:

http://des.nh.gov/organization/divisions/water/dwgb/well_testing/documents/well-testing.pdf

NH DHHS Public Inquiry Line: 603-271-9461

- ▶ Any questions or concerns should be directed to the Public Inquiry Line
- ▶ Any requests for PFC blood testing should be directed to the Public Inquiry Line
- ▶ Concerns about your individual health are best addressed by your healthcare provider



Questions and Answers (written)

Brian McCarthy



Questions and Answers (verbal)

Please limit comments/questions to 1 minute to leave time for response and others' questions

Brian McCarthy